

What is claimed is:

CLAIMS

1. A method for providing keys for descrambling scrambled content, the scrambled content being divided into frames, the method comprising:
 - identifying a plurality of frames to be descrambled;
 - for each frame of the plurality of frames, identifying a key period associated with a key for descrambling the frame; and
 - for at least one frame f of the plurality of frames:
 - substituting a substitute frame g for the frame f , the substitute frame g being chosen in order to reduce a total number of key periods associated with keys for descrambling all of the plurality of frames.
2. The method according to claim 1 and also comprising:
 - producing one key for each key period.
3. The method according to claim 1 and also comprising:
 - producing exactly one key for each key period.
4. The method according to claim 2 and wherein the producing comprises producing from an ECM.
5. The method according to claim 3 and wherein the producing comprises producing from an ECM.
6. The method according to claim 1 and also comprising:
 - rendering at least one of the plurality of frames.
7. The method according to claim 6 and wherein the rendering comprises rendering all of the plurality of frames.

8. The method according to claim 1 and wherein the substituting comprises:

determining a number NK of key periods to be skipped for each key period to be descrambled, NK being greater than or equal to 1;

determining a plurality of groups of key periods, each group including one key period to be descrambled and NK key periods to be skipped;

determining a number N of frames to be provided from each group of the plurality of groups of key periods; and

for each one group of the plurality of groups of key periods, choosing N frames to be provided from within the one key period to be descrambled, which one key period is comprised in the one group.

9. The method according to claim 8 and wherein N is greater than or equal to 2.

10. The method according to claim 9 and wherein the N frames are evenly spaced within the one key period.

11. A method for providing keys for descrambling scrambled content, the scrambled content being divided into frames, the method comprising:

identifying a plurality of frames to be descrambled;

for each frame of the plurality of frames, identifying a key period associated with a key for descrambling the frame; and

for each frame f of the plurality of frames:

determining whether to substitute a substitute frame g for the frame f based, at least in part, on a distance between frame g and frame f , and, at least in part, on a goal of reducing a total number of key periods associated with keys for descrambling all of the plurality of frames; and

based on a result of the determining, substituting frame g for frame f .

12. The method according to claim 11 and also comprising:

producing one key for each key period.

13. The method according to claim 11 and also comprising:
producing exactly one key for each key period.
14. The method according to claim 12 and wherein the producing comprises producing from an ECM.
15. The method according to claim 13 and wherein the producing comprises producing from an ECM.
16. The method according to claim 11 and also comprising:
rendering at least one of the plurality of frames.
17. The method according to claim 16 and wherein the rendering comprises rendering all of the plurality of frames.
18. Apparatus for providing keys for descrambling scrambled content, the scrambled content being divided into frames, the apparatus comprising:
a frame identifier identifying a plurality of frames to be descrambled;
a key period identifier operative, for each frame of the plurality of frames, to identify a key period associated with a key for descrambling the frame;
and
a frame substitutor operative, for at least one frame *f* of the plurality of frames, to substitute a substitute frame *g* for the frame *f*, the substitute frame *g* being chosen in order to reduce a total number of key periods associated with keys for descrambling all of the plurality of frames.
19. Apparatus for providing keys for descrambling scrambled content, the scrambled content being divided into frames, the apparatus comprising:

a frame identifier identifying a plurality of frames to be descrambled;

a key period identifier operative, for each frame of the plurality of frames, to identify a key period associated with a key for descrambling the frame; and

a frame substitutor operative, for each frame *f* of the plurality of frames, to determine whether to substitute a substitute frame *g* for the frame *f* based, at least in part, on a distance between frame *g* and frame *f*, and, at least in part, on a goal of reducing a total number of key periods associated with keys for descrambling all of the plurality of frames, and, based on a result of the determining, to substitute frame *g* for frame *f*.

20. Apparatus for providing keys for descrambling scrambled content, the scrambled content being divided into frames, the apparatus comprising:

means for identifying a plurality of frames to be descrambled;

means for identifying, for each frame of the plurality of frames, a key period associated with a key for descrambling the frame; and

means for substituting, for at least one frame *f* of the plurality of frames, a substitute frame *g* for the frame *f*, the substitute frame *g* being chosen in order to reduce a total number of key periods associated with keys for descrambling all of the plurality of frames.

21. Apparatus for providing keys for descrambling scrambled content, the scrambled content being divided into frames, the apparatus comprising:

means for identifying a plurality of frames to be descrambled;

means for identifying, for each frame of the plurality of frames, a key period associated with a key for descrambling the frame; and

means for performing the following for each frame *f* of the plurality of frames:

determining whether to substitute a substitute frame *g* for the frame *f* based, at least in part, on a distance between frame *g* and frame *f*, and, at

least in part, on a goal of reducing a total number of key periods associated with keys for descrambling all of the plurality of frames; and
based on a result of the determining, substituting frame g for frame f.